

A New Species of *Aegires* Lovén, 1844
(Opisthobranchia: Doridacea: Aegiretidae)
from the Caribbean Sea: *Aegires ortizi* spec. nov., with
Comparative Descriptions of the North
Atlantic Species of this Genus

by

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Abstract. *Aegires ortizi*, spec. nov. is described from the Caribbean Sea, and compared with the other two Atlantic species: *Aegires punctilucens* (Orbigny, 1837) and *A. sublaevis* Odhner, 1932. The new species has an inner denticle below the base of the cusp of each radular tooth and conical tubercles over the mantle.

INTRODUCTION

THE GENUS *Aegires* Lovén, 1844, has two Atlantic species: *Aegires sublaevis* Odhner, 1932, and *A. punctilucens* (Orbigny, 1837). The first is a rare species, known only from the Canary Islands, the Mediterranean, Panama, and Bermuda (ODHNER, 1932; MEYER, 1977; ALTIMIRA & ROS, 1979; THOMPSON, 1981; SCHMEKEL & PORTMANN, 1982). The second is widely distributed through the European Atlantic and the Mediterranean Sea (SCHMEKEL & PORTMANN, 1982; THOMPSON & BROWN, 1984). The species of this genus have an elongate body covered by numerous papillae, tubercles or keels, bi- or tripinnate gills, and simple hook-shaped radular teeth.

During the first scientific Cuban-Spanish expedition to Juventud (formerly Pinos) Island and the Canarros Archipelago in 1984, a specimen of *Aegires* was caught and

initially identified as *A. punctilucens*. A more detailed study proved that it is a new species, which is described in this work and compared with *A. punctilucens* and *A. sublaevis*.

Family AEGIRETIDAE Fischer, 1883
Genus *Aegires* Lovén, 1844

Aegires punctilucens (Orbigny, 1837)
(Figures 1B, 2B, 3B, 4)

Synonyms:

Polycera punctilucens Orbigny, 1837.
Doris maura Forbes, 1840.
? *Aegires leuckarti* Vérany, 1853 (see discussion).
Aegires hispidus Hesse, 1872.

Geographic range: Northeast Atlantic, from Sweden and the British Isles as far as the Mediterranean Sea (SCHME-

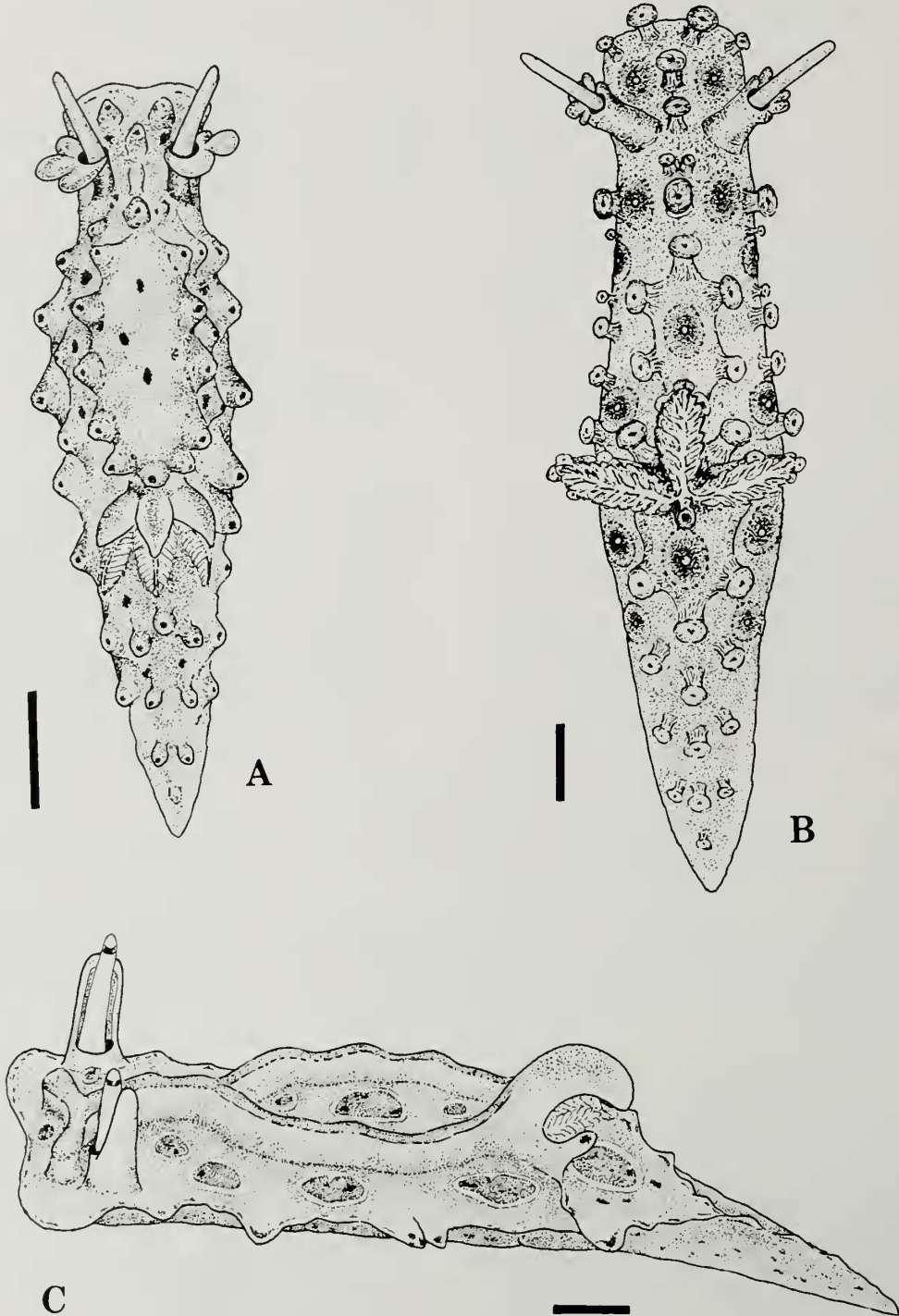


Figure 1

A, *Aegires ortizi*, spec. nov.; B, *A. punctilucens* (Orbigny, 1837); C, *A. sublaevis* Odhner, 1932. Scale = 1 mm.

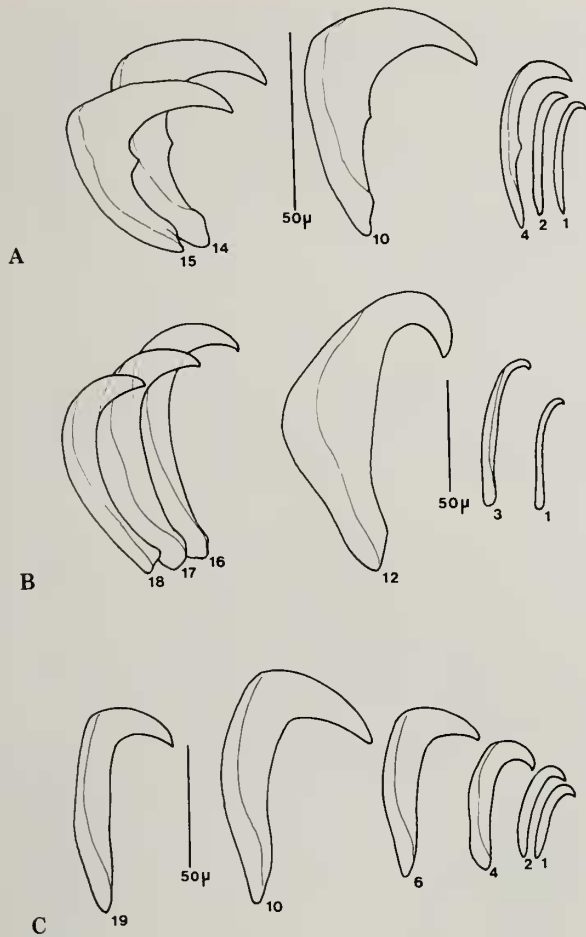


Figure 2

Half row of the radulae of *Aegires ortizi* (A), *A. punctilucens* (B), and *A. sublaevis* (C).

KEL & PORTMANN, 1982; THOMPSON & BROWN, 1984). Only a single record from Japan (BABA, 1974), and one other from Guam (HOFF & CARLSON, 1974).

Material: Asturias (north Spain), 40 specimens from 4 to 15 mm in length, collected between 1976 and 1980. This species is frequent under stones with sponges and bryozoans in tide pools.

Cabo de Palos (Murcia, southeast Spain), 42 specimens from 2 to 9 mm in length, collected between 1979 and 1984. In this zone, *Aegires punctilucens* has been collected between 3 and 23 m of depth, in rhizomes of *Posidonia oceanica* and on shady rocky walls.

La Herradura (Granada, southeast Spain), one specimen 5 mm long, collected by diving on 3 Apr. 1985, in a sample of coralligenous gravel at 20 m of depth.

Description: The studied specimens have a firm body. The dorsum bears abundant mushroom-shaped tubercles.

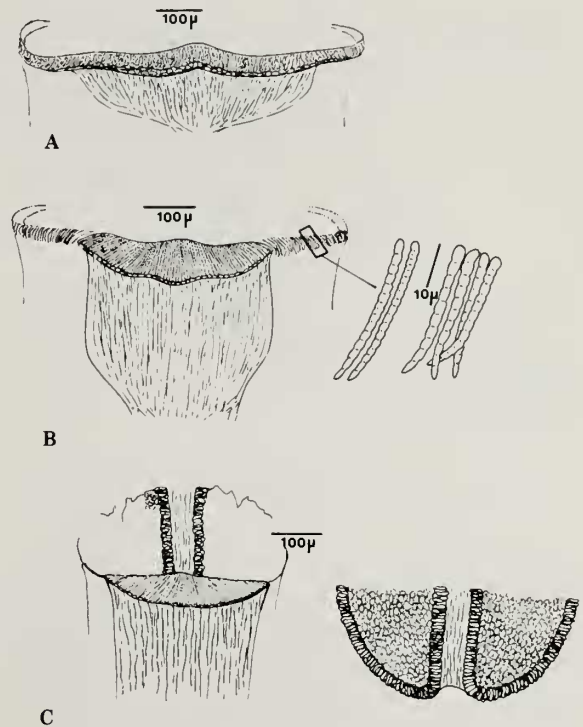


Figure 3

Labial armature of *Aegires ortizi* (A), *A. punctilucens* (B), and *A. sublaevis* (C); right, detail of the posterior mid-ventral part.

The body color is grayish brown, paler in young specimens and darker in adults. There are very small opaque white dots all over the surface, especially on the rhinophores and gills. There is a dark red spot on the top of each tubercle. The rhinophores are smooth and cylindrical, occasionally with an apical dark band. There are three bi- or tripinnate gills just behind the three large tubercles. The dorsum presents ocelli consisting of an orange-yellow area with an iridescent blue, small circle in the center.

Most of the Mediterranean specimens are of small size (3 to 5 mm), of pale color, with more conical tubercles, and without the ocelli characteristic of this species. Only the larger specimens have the typical coloring.

SCHMEKEL & PORTMANN (1982) and THOMPSON & BROWN (1984) give complete descriptions of this species, and KRESS (1981) gives a detailed account of the structure of the tubercles of the mantle.

The labial armature has a well developed mid-dorsal plate, and the lateral areas are armed with rods (Figure 3B). The radula of a 7-mm specimen (Figure 2B) has a formula of $15 \times 18-0-18$. All the teeth are hook-shaped and increase in size continuously and regularly from the 1st to the 12th in each row; from the 12th to the 16th they are of the same size, and the 17th and 18th teeth decrease in size.

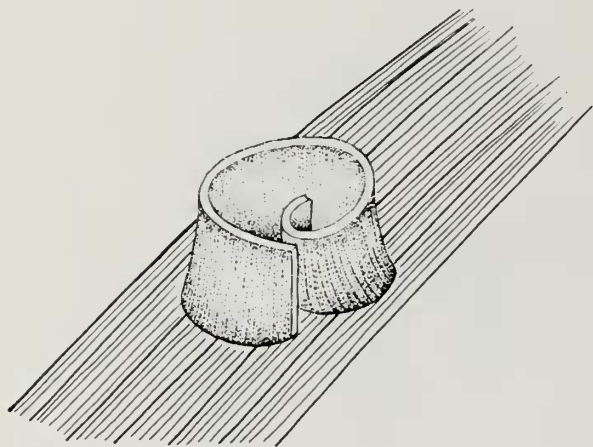


Figure 4

Spawn of *Aegires punctilucens*, on a leaf of *Zostera*.

Biology: *Aegires punctilucens* lives from the intertidal zone to depths of 100 m (FRIELE & GRIEG, 1876), and feeds on encrusting bryozoans (HUNNAN & BROWN, 1975) or sponges of the genus *Leucosolenia* (THOMPSON & BROWN, 1984). The spawn is a simple spiral ribbon of one whorl (Figure 4), with eggs of 90–100 μm diameter. THIRIOT-QUIEVREUX (1977) published a detailed study of the larval development and metamorphosis of this species.

Discussion: Two subspecies of *Aegires punctilucens* are recognized by some authors, e.g., SCHMEKEL & PORTMANN (1982): the nominal subspecies and *A. punctilucens leuckarti* Vérany, 1853. According to HAEFELFINGER (1968), *A. leuckarti* Vérany, 1853, known principally from the Mediterranean Sea, which lacks ocellated markings, is synonymous with *A. punctilucens*. SCHMEKEL & PORTMANN (1982) believe that there are no significant anatomical differences (radula, labial armature, and genital organs) between the two subspecies, but they differ in biological characters: the genital system is completely developed in 3-mm specimens of *A. punctilucens leuckarti*, and only in 7-mm specimens of the nominal subspecies; *A. p. leuckarti* spawns from September to October, and *A. p. punctilucens* from March to April. Also, two-thirds of the specimens of *A. p. leuckarti* live at more than 30 m of depth, whereas 90% of *A. p. punctilucens* live over 20 m of depth. We think that the validity of these two subspecies must be reexamined, because they have a sympatric distribution and, moreover, in some localities (*viz.* Cabo de Palos, Murcia, SE Spain), we have found both in the same habitat. In any case, if reproductive isolation and lack of hybridization were eventually proved, they should be considered as different species.

BABA (1974) recorded *Aegires p. punctilucens* from Japan and HOFF & CARLSON (1974) recorded *A. p. leuckarti* from Guam. The specimen from Japan (BABA, 1974) shows slight morphological and anatomical differences

from the European ones, mainly in radular features. The Japanese specimen is 13 mm long and its radular formula is $15 \times 15-0-15$; a 12-mm specimen from the Isle of Man (Atlantic), described by THOMPSON & BROWN (1984), has a formula of $23 \times 22-0-22$. The outer and inner teeth are similar in the Japanese specimen, whereas the Atlantic specimens have the outer teeth thicker than the inner ones. HOFF & CARLSON (1974) did not give any data for the radula of their specimen.

Aegires sublaevis Odhner, 1932

(Figures 1C, 2C, 3C)

Geographic range: Mediterranean Sea (SCHMEKEL & PORTMANN, 1982) and Canary Islands (ODHNER, 1932; ALTIMIRA & ROS, 1979). Galeta Point, Panama (MEYER, 1977) and Bermuda (THOMPSON, 1981).

Material: Twelve specimens from 3 to 13 mm long collected in Tenerife and Lanzarote (Canary Islands) during the "Plan de Bentos Circuncanario (1980–82)," from the intertidal zone to 6 m of depth, associated with the sponge *Clathrina coriacea* (Montagu), on which it feeds.

One specimen 10 mm in length, from Cabo de Palos (Murcia, southeast Spain), collected on 7 Aug. 1984 at 25 m of depth in a cave.

Description: The body is lemon-yellow, rarely light cream, with minute brown punctae regularly scattered, and large brown spots with white and dark brown minute spots surrounded by lighter areas. The larger spots vary in number and distribution among the different specimens, but usually are aligned in three anteroposterior fringes. The dorsum presents two longitudinal crests that join at the level of the rhinophores in front, and near the gills behind, forming three lobes directed backwards, with the central lobe more developed. Also, there are swellings along the edges and behind the gills. The rhinophoral sheaths have only an external lobe, and the rhinophores are smooth with a brown ring near the apex. The three tripinnate gills are whitish or light yellow, with brown punctae. The Mediterranean specimen has no significant differences from the Canary Islands ones.

The middle plate and lateral areas of the labial armature are thickened; the structure and function of the labial armature have been described by THOMPSON (1981). The radula of a 7-mm fixed specimen has a formula of $14 \times 19-0-19$. The teeth rapidly increase in size from the 1st to the 7th; increase slowly from the 8th to the 10th; are of equal size from the 11th to 17th; and the 18th and 19th decrease.

Aegires ortizi Templado, Luque & Ortea, spec. nov.

(Figures 1A, 2A, 3A)

Material: One specimen 7 mm in length, from the southern slope of the "Bocas de Alonso" Keys ($82^{\circ}30'W$, $21^{\circ}40'N$), SW Cuba, found on a sample of *Thalassia tes-*

tudinum, collected by diving at 4 m of depth, on 18 Apr. 1984. No additional specimens were found in 14 days of sampling in the neighboring waters to the southern region of Juventud (formerly Pinos) Island. The holotype and a permanent mount of the labial armature and radula are deposited in the Museo Nacional de Ciencias Naturales of Madrid, with the number 12-64/1006.

Description: The unique specimen has a firm body, with abundant more or less conical tubercles, arranged in four longitudinal rows. The two inner rows join posterior to the rhinophores, and just anterior to the gills. The rhinophoral sheaths have three large tubercles on the side distal to the rhinophores, which are smooth and cylindrical, light brown, and with a cream-colored apex. There are three gills of cream color, protected by three large anterior tubercles. The general body color is creamy yellow with minute white punctae in the region of the tubercular rows, and is light brown between these rows. The sole of the foot is whitish. There is a dark brown spot on the top of each tubercle, and there are some oval-rounded spots of this color in the center of paler areas distributed over the dorsum (Figure 1A).

The labial armature has a slightly developed mid-dorsal plate (Figure 3A) and lateral areas without differentiated elements. The radula (Figure 2A) has a formula of $15 \times 16-0-16$; the teeth are hook-shaped with a clear denticle in their inner middle part.

Etymology: *Aegires ortizi*, spec. nov. is named in honor of Dr. Manuel Ortiz, Vicedirector of the "Centro de Investigaciones Marinas" of Havana University, for his kind cooperation.

Discussion: *Aegires ortizi* resembles *A. punctilucens*, but clearly differs from this species and the other known species of the genus by the inner denticle of the radular teeth. The conical tubercles of the mantle are also different from the mushroom-shaped ones of *A. punctilucens* and from the keels of *A. sublaevis*, the other two Atlantic species.

The presence of an inner denticle in the radular teeth of this new species is of particular interest, because it represents an intermediate structure between the simple hook-shaped teeth of the known species of *Aegires* and the bifid radular teeth of the related Indo-Pacific genus *Notodoris* Bergh, 1875. The prey of *A. ortizi* is unknown, but other species of *Aegires* are known to prey on calcareous sponges (BERTSCH, 1980).

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